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ABSTRACT

In the pursuit of the question as to whether there are significant relationships between certain measures of personality and abstract or critical thinking, it was believed that should significant relationships exist, they may prove useful as one of the factors among several used in the selection of teachers. A paucity of literature citations addressing the above relationships gave further impetus to the necessity for pursuing the question posed. Sixty subjects pursuing advanced degrees in Educational Psychology and in Curriculum and Instruction were administered the 16 Personality Factor Test, the Myers-Briggs Type Inventory, the Tennessee Self-Concept Scale, the Motivation Analysis Test, and Terman's Concept Mastery Test; the latter test was seen as the dependent variable. Regression analysis revealed two significant predictors of abstract-critical thinking, namely Narcism and Self-Sentiment as measured by the Motivation Analysis Test, from among the several factors measured by the instruments. (Author/TJH)

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REGRESSION ANALYSIS OF MEASURES OF ABSTRACT REASONING, PERSONALITY, SELF, AND MOTIVATION

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ABSTRACT

In pursuit of the question as to whether there are significant relationsnips between certain measures of personality and abstract or critical thinking, it was believed that should significant relationships exist, they may prove useful as one of the factors among several used in the selection of teachers. A paucity of literature citations addressing the above relationships gave further impetus to the necessity for pursuing the question posed.

A sample of 60 subjects pursuing advanced degrees in Educational Psychology and in Curriculum and Instruction were administered the 16 Personality Factor Test, the Myers-Briggs Type Inventory, the Tennessee Self-Concept Scale, the Motivation Analysis Test, and Terman's Concept Mastery Test, the latter of which was seen as the dependent variable. Regression analysis revealed two significant predictors of abstract-critical thinking, Narcism and Self-Sentiment as measured by the Motivation Analysis Test, from among the several factors measured by instrumentation.

REGRESSION ANALYSIS OF MEASURES OF ABSTRACT REASONING, PERSONALITY, SELF AND MOTIVATION

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Introduction

While conducting research on graduate and undergraduate students in a Center of Excellence at Memphis State University (Hughes & Costner, in press), we became interested in abstract-critical thinking as a dependent variable. In this instance, we viewed abstract thinking and critical thinking as confluent. We then posed the question: Are there significant relationships between certain measures of personality and abstract-critical thinking? In other words, we thought it may be profitable to investigate the strength of certain personality characteristics in predicting abstract-critical thinking ability. It was believed that should significant relationships exist, they may prove to be useful as one of the factors among several used in the selection of teachers.

A review of the literature did not provide us a plethora of studies utilizing personality variables in relationship to abstract-critical thinking. An ERIC search from 1974 to 1986 revealed 59 citations on abstract or critical thinking, none of which related personality. However, a study reported by Hooper, Hooper, & Colbert (1984) indicated that the variable of field independence was an accurate predictor of Piagetian formal or abstract reasoning which may be construed as a type of critical thinking. The only additional study found that involved personality and the prediction of abstract-critical thinking was accomplished by Peters (1982). Using the Omnibus Personality Inventory, he measured teachers' preference for complexity (abstract-critical thinking) and compared findings with results of scores on the Verbal Reaction Behavior Log. His overall results suggested that teachers who scored high on the OPI preference for complexity tended to cause students to think deeply and more critically.

A large number of the literature gleanings were practical in essence and focused on themes of how to teach or promote abstract-critical thinking (Atwood, 1983; Meiss, 1983; Salvatori, 1983; Martinson, 1981; Gorman, 1981; Francoz, 1974; and Nietzke, 1974). A study by Fritz and Weaver (1984) was most comprehensive in making the case for the need to teach critical thinking skills to college and university students in order to improve their ability to organize their thinking and their oral and written expression. Nickerson (1984), in a technical report for the National Institute of Education, has provided an excellent source for a broad view of the state of the art in abstract-critical thinking, including the role of computer programming. Configuratively, our search revealed an abundance of efforts to describe methods to increase abstract-critical thinking, but a paucity of descriptive or experimental research to describe personality correlates or predictors of abstract-critical thinking.

Method

Subjects

The sampling consisted of 60 subjects at Memphis State University who were in the pursuit of advanced degrees in Educational Psychology and in Elementary-Secondary Education. Thirty-six of the sample held teacher certificates in the state of Tennessee. Total sample mean on the Miller

Analogies Test (an admission test) was 50.6. There were 8 males and 52 females in the sample.

Instrumentation

Subjects were administered five instruments to measure personality factors, personality type, self-concept, motivation, and abstract or critical thinking. The Sixteen Personality Factor Test yields a general intelligence scale and 15 self-report personality scales. Personality type was elicited through use of the Myers-Briggs Type Indicator. The MBTI measures an individual's perceptual preferences that may be categorized into four indices (Extraversion-Introversion, Sensing-Intuition, Thinking-Feeling, Judgment-Perception) that may result in 16 types. The Motivation Analysis Test provides a dynamic structure profile. The structures include: Career, Home-Parental, Fear, Narcism-Comfort, Superego, Self-Sentiment, Mating, Pugnacity-Sadism, Assertiveness, and Sweetheart-Spouse. The Tennessee Self-Concept Scale renders measures in the area of Family, Moral-Ethical, Personal, Physical, Social, Identity, Self-Satisfaction, Behavioral Self and a Total Self Score. Terman's Concept Mastery Test was the final instrument utilized and served as our dependent variable. It is considered to be a measure of one's ability to deal with high level abstract ideas.

Test results were placed on data sheets and a data file created on the Sperry Univac 1100 Computer. Statistical Package for the Social Sciences X (SPSS-X) Release 2 was utilized to produce correlations, regression analysis and ANOVA.

Results

In pursuit of the basic question of whether there were significant relationships between certain measures of personality and critic1 or abstract thinking, we found that only one of our instruments, the Motivation Analysis Test, yielded significant results. As shown in Table 1., Narcism was significantly predictive of Total Concept Mastery Score in step one of the stepwise regression. Table 2. evidences that Self-Sentiment also reached significance in predicting Total Concept Mastery Score in step two. In both instances, the level of significance was at .01.

Discussion

Narcism, as measured by the Motivation Analysis Test, is interpreted to suggest the individual's drive or motivational system places emphasis on the importance of the self. When one considers that a drive toward any level of success is related to one's perceptions of personal well-being and accomplishment, then it should follow that high Narcism drive levels would be related to seeking higher levels of thought; certainly in those who tend to be intellectually inclined. In essence, a person adept at executing critical or abstract thinking has probably sought personal satisfaction in that area, and has most likely achieved it. Because this sample consisted of educators, it seems reasonable to suggest that a measure of personal satisfaction would come from solving problems and teaching others to do so, and in dealing with complex issues.

Self-Sentiment, while somewhat related to Narcism, is differentiated by a drive toward self-awareness and self-realization. Thus, a high drive in this area would be based on a need to authenticate things (solve problems and think how things work) and to find out more about themselves. Achievers and thinkers usually score high on this variable. Consequently, one may see in the drive to fulfill the intellectual self a relationship with the ability to think critically or abstractly.

The task of describing what personality and motivation factors we should look for in selecting future teachers is fraught with difficulty but is not an impossible one. What this research has attempted to do is open the vistas for more descriptive data as to what intelligent teachers of the future should possess in the way of motivation and personality. Tomorrow's children should have teachers with the best of both.

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Table 1.

Stepwise Regression Analysis

Narcism With Total Concept Mastery Score

Multiple R	.36910
R Square	.13623
Adjusted R Square	.12134
Standard Error	37.81713

ONE-WAY ANOVA

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Regression	1	13082.33021	13082.33021	9.14762	.0037*
Residual	58	82947.85312	1430.13540		

*Sig. at .01 level

Table 2.

Stepwise Regression Analysis

Self-Sentiment With Total Concept Mastery Score

Multiple R	.43909
R Square	.21077
Adjusted R Square	.18308
Standard Error	36.46439

ONE-WAY ANOVA

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Regression	2	20240.04510	10120.02255	7.61103	.0012*
Residual	57	75790.13823	1329.65155		

*Sig. at .01 level

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